PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN THE APPLICATION OF:

ROGER MOONS

CASE NO.: AD6883USNA

APPLICATION NO.: 10/627902

GROUP ART UNIT: 1761

FILED: JULY 25, 2003

EXAMINER: DREW E. BECKER
CONFIRMATION NO.: 3469

FOR: IMPROVED THERMOPLASTIC POLYMERIC OVENWARE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION UNDER 37 C.F.R. 1.132

1. I obtained a B.S. in Chemistry from the Polytechnic Institute of Brooklyn in 1962 and a Ph.D. in Organic Chemistry from the University of California at Davis in 1967.

2. I am currently receiving a pension from the assignee of this application E.I. DuPont de Nemours & Co., Inc. (hereinafter DuPont).

3. I am a Registered Patent Agent (No. 33,852).

4. I am currently a consultant for DuPont on technical and patent matters.

5. While consulting for DuPont I directed an experiment as set forth below.

6. A composition containing 55 weight percent of Zenite® 6000 Liquid Crystalline Polymer (available from E. I. DuPont de Nemours & Co., Inc., Wilmington, DE 19998 USA), 37 weight percent talc, and 8 weight percent carbon fiber was prepared by melt mixing in a 30 mm Werner & Pfleiderer twin screw extruder. The techniques used to prepare this composition were similar to those commonly used to prepare other compositions containing LCPs.

7. The above composition was molded in a 6 oz. HPM injection molding machine into 4 inch diameter disks.

8. An above described disk (after machining) was tested for through plane thermal conductivity. The resulting value was 0.368 W/m°K.

9. The attached pages from Electronic Research Notebooks D100052 and D100008 describe this experiment and the conditions used for the various operations. The sample number for the above described composition was 13-1. The composition of sample 13-2 has been blanked out from the page, and the results for the thermal conductivity of this sample have been omitted.

Joel D. Citron

Date: Mar 2, 2007

T:\Patent Documents\Eng. Polymers\AD-68xx\AD6883\AD6883 Declaration of Joel Citron.doc

DuPont Electronic Laboratory Notebook

Identification Number : D100052-28.01

Experiment Name : D100052-13

Program Name : Zenite

Project Name:Thermoconductivity for Joel Citron

Document Name : D100052-13 series Thermal Conductive Zenite Joel Citron.pdf

Site Name : DEP ST

Business Unit :Engineering Polymers

Author Name : Mike J. Molitor Date : 02/26/2007 14:59:57

Co-Author Details :

Witness Name : Adcock, Dave Date : 02/26/2007 15:03:04

Date (GMT)	Signed by
2/26/2007 07:59:57 PM	Name: Mike J. Molitor
	Pre-Sig Hash: 9b9c723fedbb8ec913753be9ae4abc415c4f0fa1
Justification	By entering your password you verify that you planned and/or executed the work, directed the work, analyzed the result, or drew the conclusions described within this document.

2/26/2007 08:03:05 PM	Name: Adcock, Dave
	Pre-Sig Hash: e004778267da1f14eed9d10dd217be30817d5b91
Justification	By entering your password you will be signing to say that you have witnessed the information contained in this document

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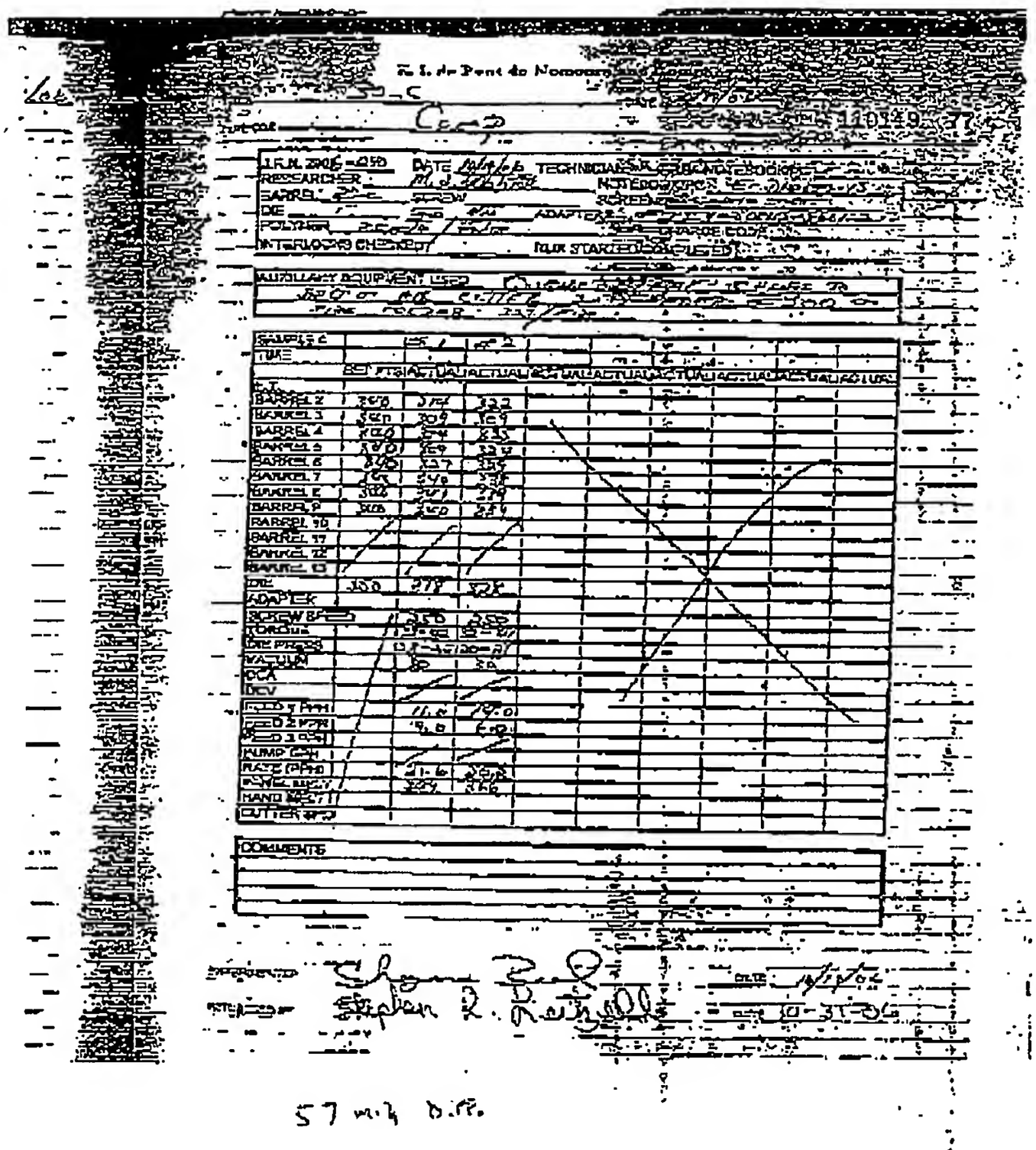
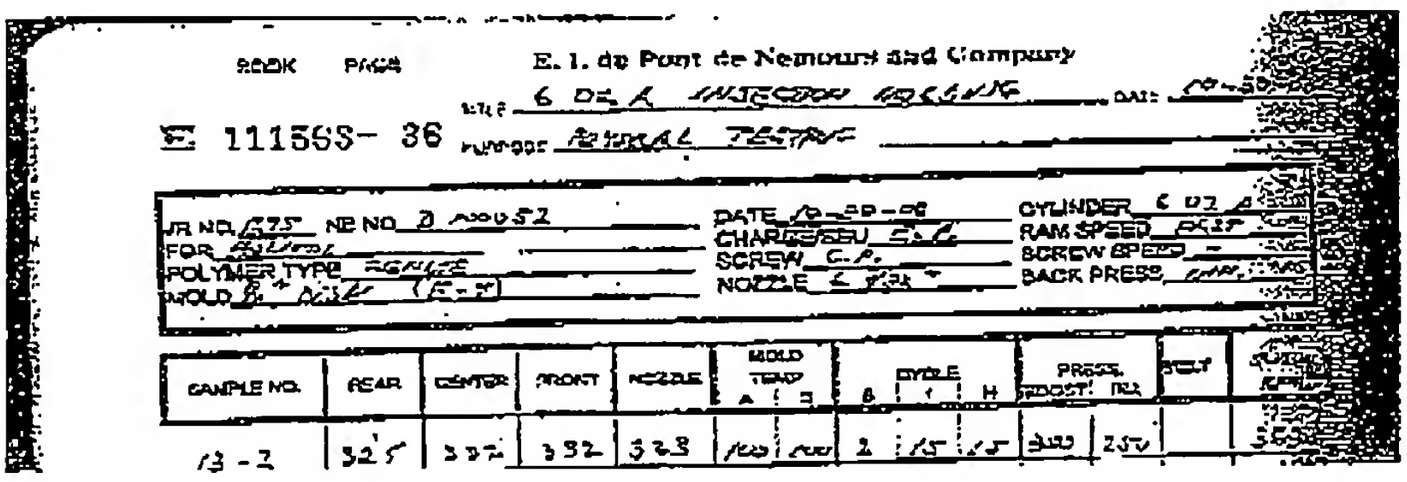
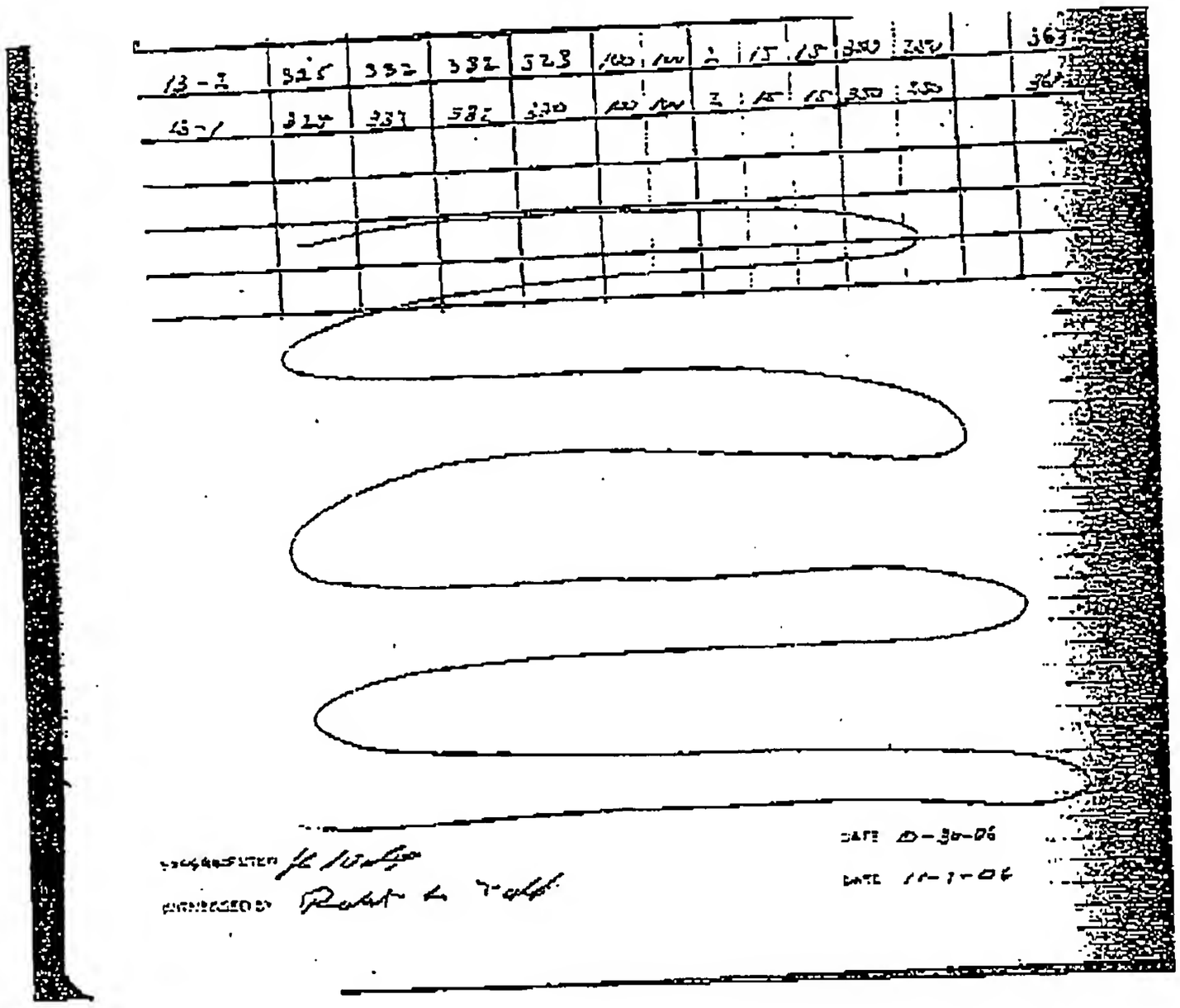
Sample # D100052	13-1	13-2
Zenite 6000	55	
Jetfil Talc 575C	37	
Carbon fiber Sigrafil	8	







DuPont Electronic Laboratory Notebook

Identification Number : D100008 32.03

Experiment Name : D100008-18

Program Name : Zenite

Project Name: Thermal Conductivity

Document Name : ThermalConductivityofD100052-13-land13-2.pdf

Site Name : EKP ST

Business Unit :Engineering Polymers

Author Name : Adcock, Dave Date : 02/26/2007 12:57:03

Co-Author Details :

Witness Name : Harvey, Pat A. Date : 02/26/2007 13:07:04

Electronically Signed	
2/26/2007 05:57:03 PM	Name: Adcock, Dave Pre-Sig Hash: [illegible]
Author Signature	By entering your password you verify that you planned and/or executed the work, directed the work, analyzed the result, or drew the conclusions described within this document.
2/26/2007 06:07:04 PM	Name: Harvey, Pat A. Pre-Sig Hash: 73b0cadec1bdedf8234bdc64d812e2e301af81ba
Witness Signature	By entering your password you will be signing to say that you have witnessed the information contained in this document
	Name: Pre-Sig Hash:
Co-Author Signature	
	Name: Pre-Sig Hash:
Co-Author Signature	
	Name: Pre-Sig Hash:
Co-Author Signature	
	Name: Pre-Sig Hash:
Co-Author Signature	

[redacted]

[redacted] Inconel coated disc

SAMPLE ID 13-1
SAMPLE THICKNESS 3.030mm

Average sample temperature = 50 C Controller= 30 C

TU (C)	TG (C)	TL (C)	TH (C)	TU-TL (C)	Q	RATIO
50.0	48.2	40.4	30.0	9.64	94721	0.221266
50.6	48.0	40.6	29.5	10.75	10096.7	0.195657
50.5	48.1	40.5	29.7	10.73	10107.1	0.195186

Average sample temperature = 75 C Controller= 55 C

TU (C)	TG (C)	TL (C)	TH (C)	TU-TL (C)	Q	RATIO
78.1	65.5	52.4	48.2	10.74	8354.4	0.233231
85.2	72.6	65.6	54.7	10.68	10161.7	0.193207
85.2	72.6	65.6	54.7	10.62	10067.3	0.193013

USING CALIBRATION FILE: ESL04200.cal USING FIRST ORDER FIT
USING TEST FILE : 13-1.txt

SAMPLE ID : 13-1
SAMPLE THICKNESS : 3.030mm
CTE : 0.000e+000

THE SAMPLE HAS A THERMAL CONDUCTIVITY OF: 3.551347e-001 W/mK = 0.355 W/mK
AND A THERMAL RESISTANCE OF : 8.208308e-003 m2K/W
AT A TEMPERATURE OF : 50.75 C

THE DELTA T THROUGH THE SAMPLE IS : 10.73 C
THE HEATER TEMPERATURE IS : 29.54 C
THE DELTA T ACROSS THE STACK IS : 31.50 C
THE GUARD TEMPERATURE IS : 48.10 C

THE SAMPLE HAS A THERMAL CONDUCTIVITY OF: 3.792624e-001 W/mK = 0.379 W/mK
AND A THERMAL RESISTANCE OF : 7.988385e-003 m2K/W
AT A TEMPERATURE OF : 75.40 C

THE DELTA T THROUGH THE SAMPLE IS : 10.62 C
THE HEATER TEMPERATURE IS : 54.63 C
THE DELTA T ACROSS THE STACK IS : 30.55 C
THE GUARD TEMPERATURE IS : 72.02 C

DuPont Electronic Laboratory Notebook

Identification Number : D100052-28.01

Experiment Name : D100052-13

Program Name : Zenicc

Project Name:Thermoconductivity for Joel Citron

Document Name : D100052-13 series Thermal Conductive Zenite Joel Citron.pdf

Site Name : EXP ST

Business Unit :Engineering Polymers

Author Name : Mike J. Molitor Date : 02/26/2007 14:59:57

Co-Author Details :

Witness Name : Adcock, Dave Date : 02/26/2007 15:03:04

Date (EST)	Signed by
2/26/2007 07:59:57 PM	Name: Mike J. Molitor
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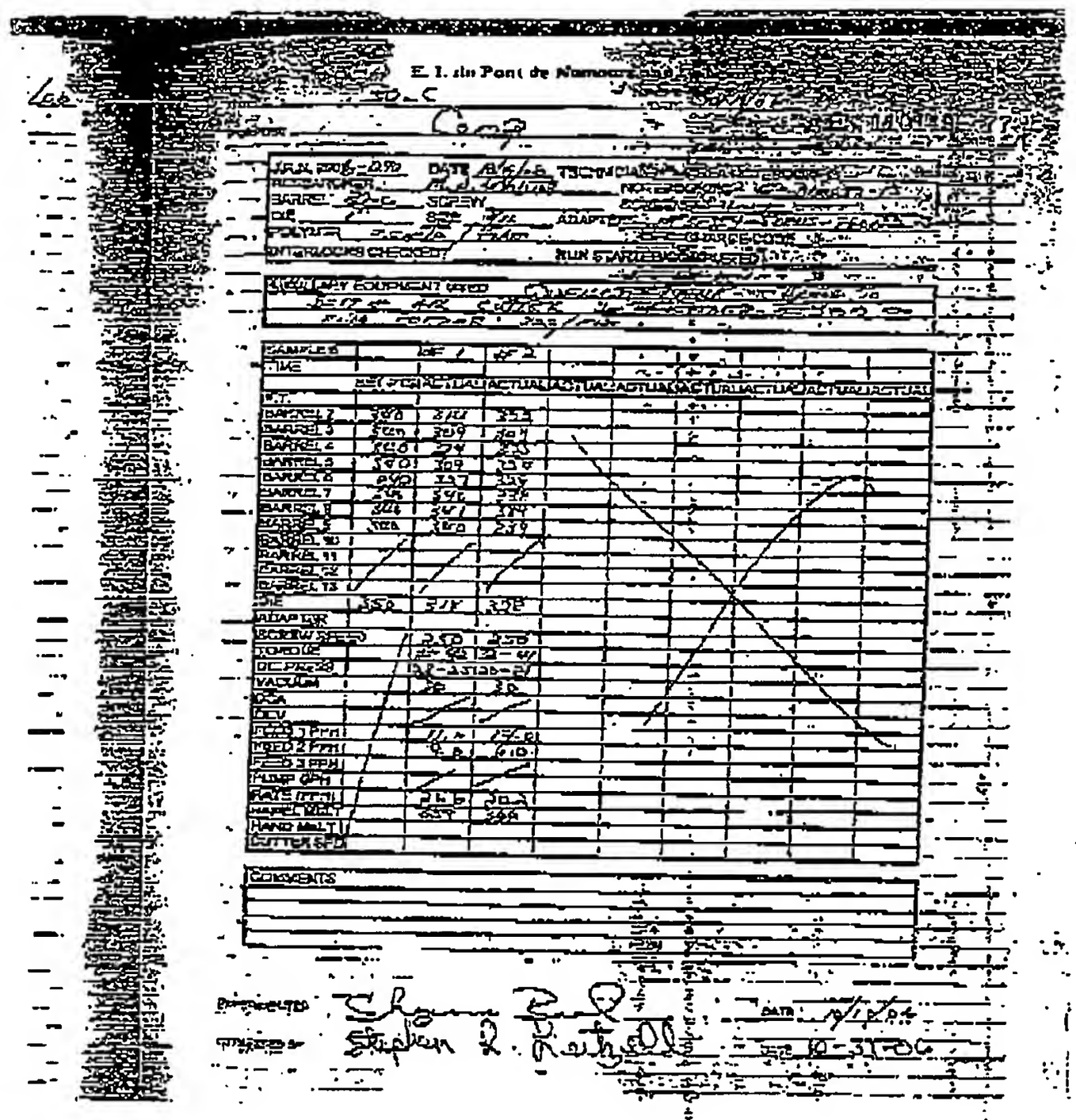
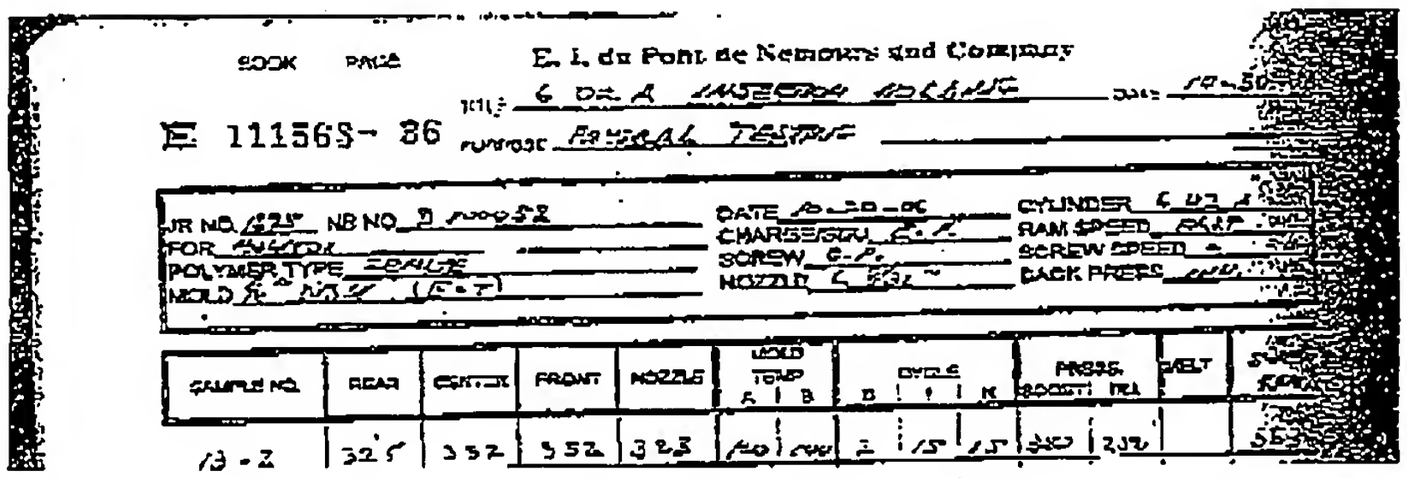
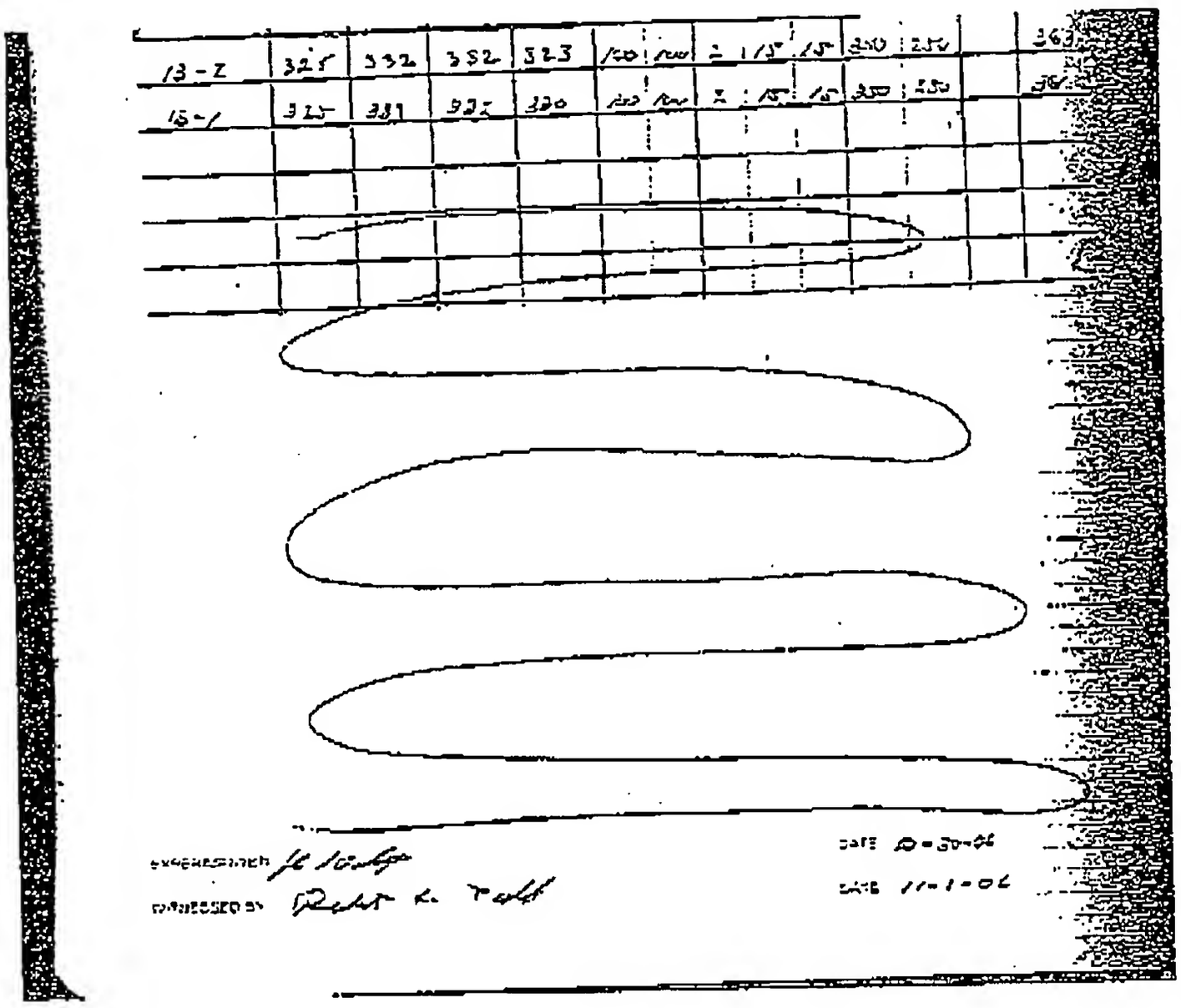
Justification	

Sample # D100052	13-1	13-2
Zenite 6000	55	
Jetfil Talc 575C	37	
Carbon fiber Sigrafil	8	







DuPont Electronic Laboratory Notebook

Identification Number : D100052-28.01

Experiment Name : D100052-13

Program Name : Zenite

Project Name:Thermoconductivity for Joel Citron

Document Name : D100052-13 series Thermal Conductive Zenite Joel Citron.pdf

Site Name : EXP ST

Business Unit :Engineering Polymers

Author Name : Mike J. Molitor Date : 02/26/2007 14:59:57

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Justification	By entering your password you verify that you planned and/or executed the work, directed the work, analyzed the result, or drew the conclusions described within this document.

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Justification	By entering your password you will be signing to say that you have witnessed the information contained in this document

	Name: Pre-Sig Hash:
Justification	

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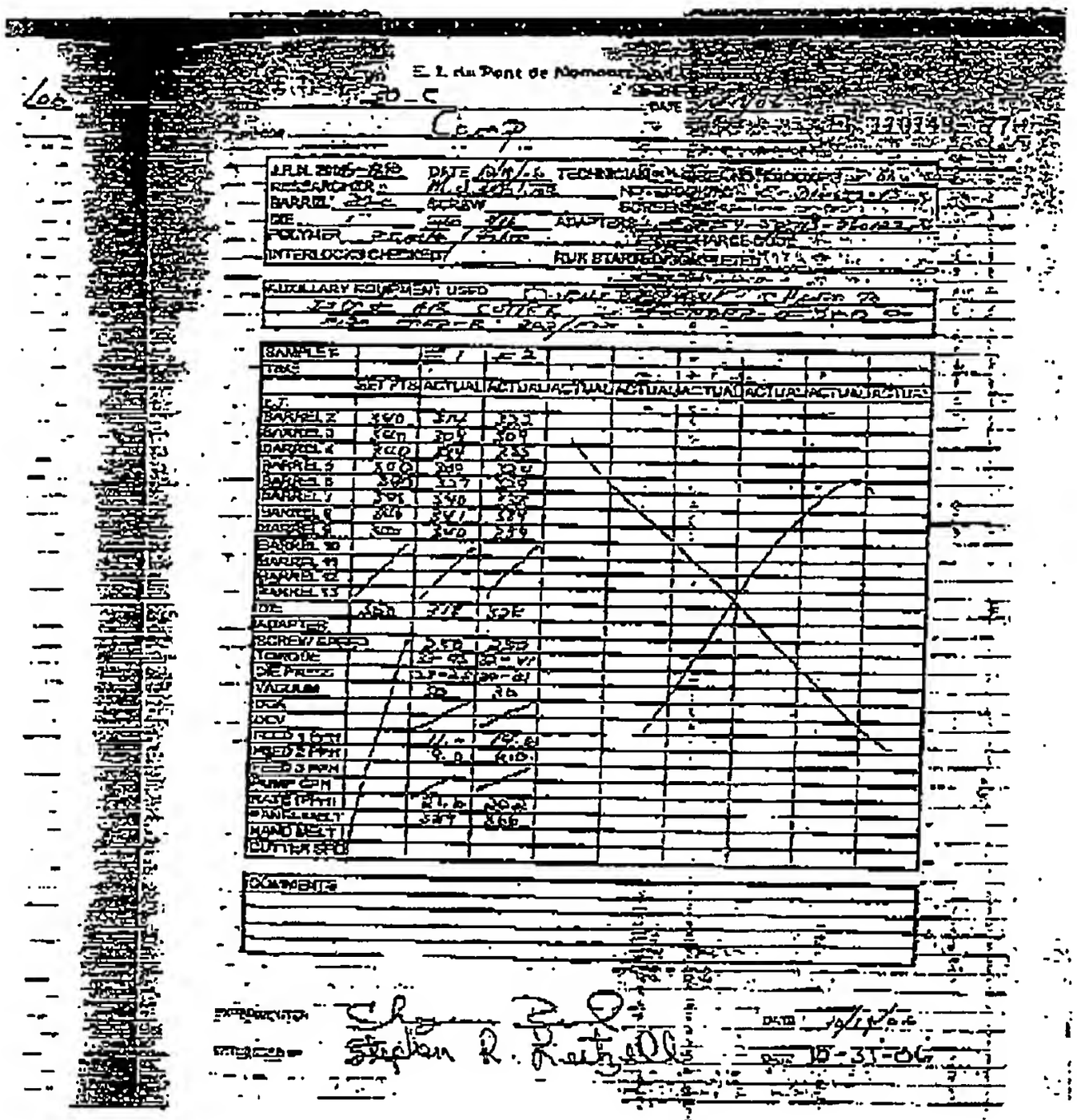
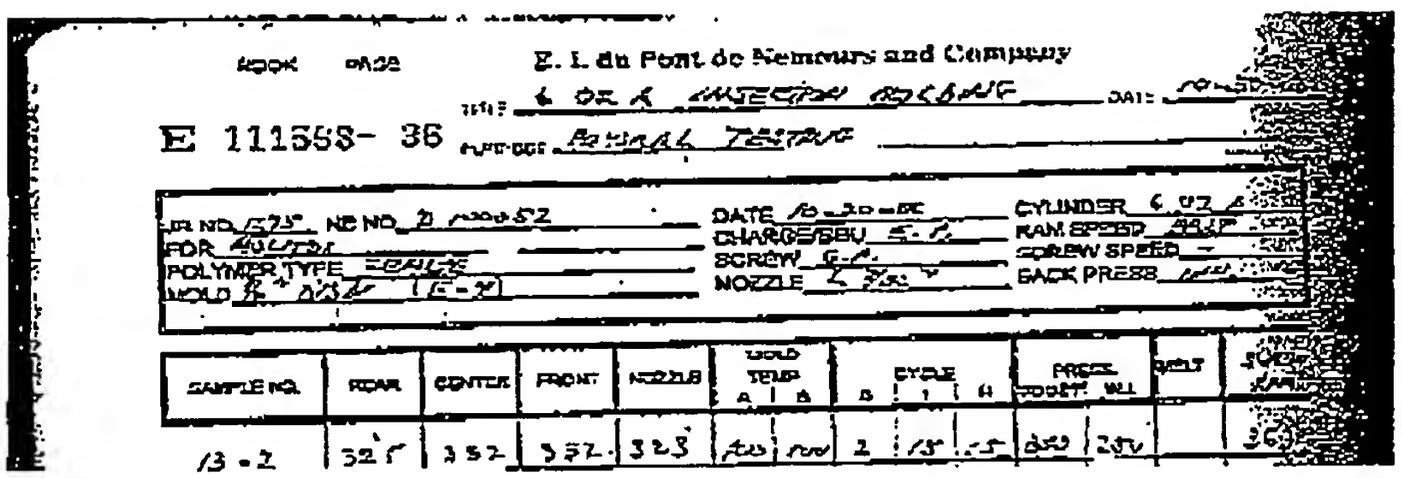
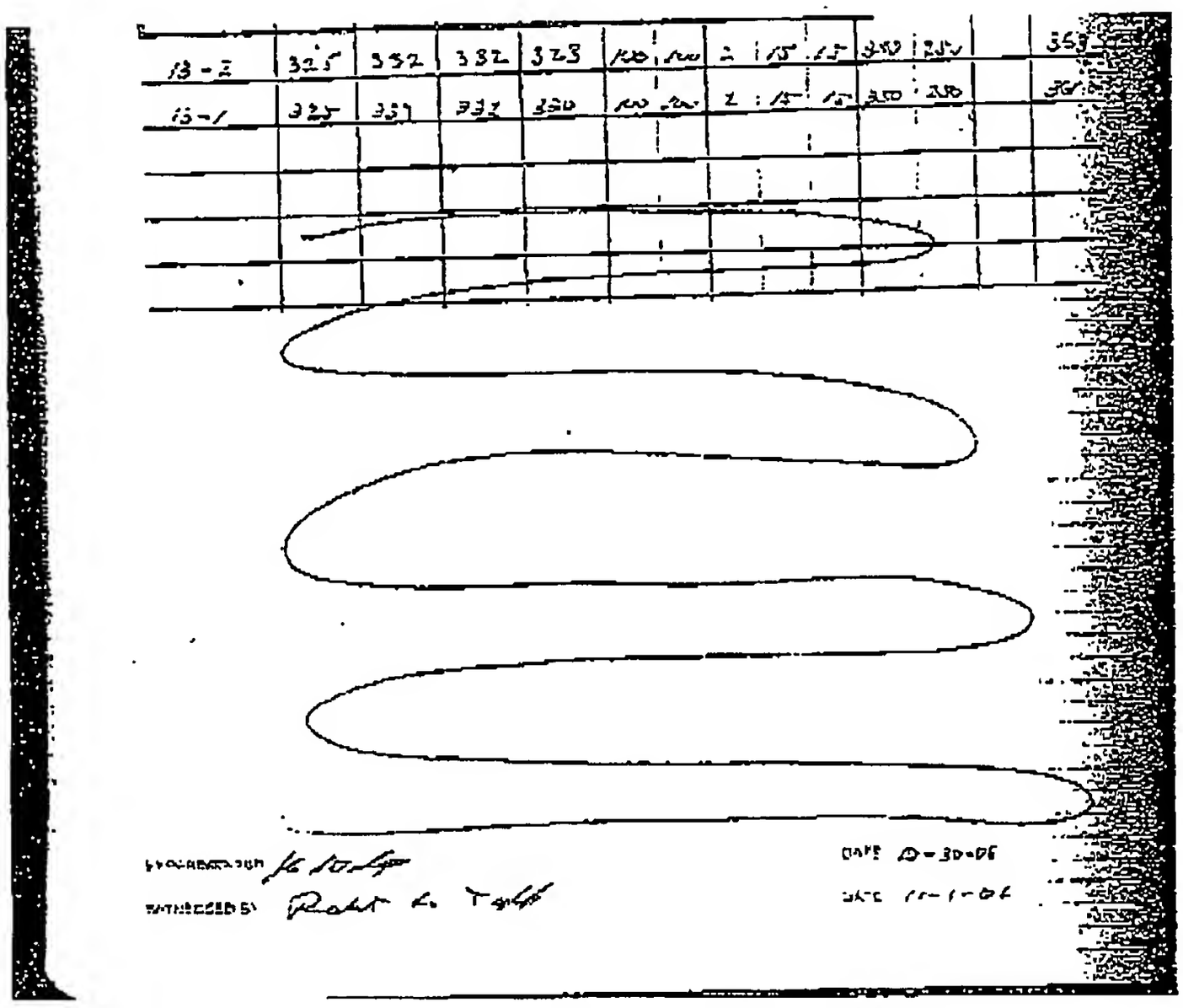
Sample # D100052	13-1	13-2
Zenite 6000	55	
Jetfil Talc 575C	37	
Carbon fiber Sigrafil	8	







DuPont Electronic Laboratory Notebook

Identification Number : D100008 22.02

Experiment Name : D100008-18

Program Name : Zenite

Project Name:Thermal Conductivity

Document Name : ThermalConductivityofD100052-13-1and13-2.pdf

Site Name : EXP ST

Business Unit :Engineering Polymers

Author Name : Adcock, Dave Date : 02/26/2007 12:57:03

Co-Author Details :

Witness Name : Harvey, Pat A. Date : 02/26/2007 13:07:04

Date [illegible]	[illegible]
2/26/2007 05:57:03 PM	Name: Adcock, Dave Pre-Sig Hash: [illegible] By entering your password you verify that you planned and/or executed the work, directed the work, analyzed the result, or drew the conclusions described within this document.
2/26/2007 06:07:04 PM	Name: Harvey, Pat A. Pre-Sig Hash: 73b0cadec1bdedf8234bdc64d81ee2e301af81ba By entering your password you will be signing to say that you have witnessed the information contained in this document
[illegible]	Name: Pre-Sig Hash:
[illegible]	Name: Pre-Sig Hash:
[illegible]	Name: Pre-Sig Hash:
[illegible]	Name: Pre-Sig Hash:

TEST DESCRIPTION
12-1-2-13-1
Inconel noted disc

SAMPLE ID : 13-1
SAMPLE THICKNESS 3.030mm

Average sample temperature = 50 C Controller= 50 C

TU (C)	TG (C)	TL (C)	TH (C)	TU-TL (C)	Q	RATIO
60.0	48.2	40.4	30.0	19.64	94721	0.201266
60.6	48.0	40.3	29.5	19.75	10096.7	0.195657
60.6	48.1	40.9	29.6	19.73	10107.1	0.195166

Average sample temperature = 75 C Controller= 55 C

TU (C)	TG (C)	TL (C)	TH (C)	TU-TL (C)	Q	RATIO
78.1	65.8	53.4	49.2	19.74	8354.4	0.263231
85.2	72.0	65.6	54.7	19.68	10161.7	0.193207
85.2	72.0	65.6	54.7	19.62	10167.3	0.193013

USING CALIBRATION FILE: ESL04200.cal USING FIRST ORDER FIT
USING TEST FILE : 12-1.txt

SAMPLE ID : 13-1
SAMPLE THICKNESS : 3.030mm
CTE : 0.000E+000

THE SAMPLE HAS A THERMAL CONDUCTIVITY OF: 3.851347e-001 W/mK = 0.385 W/mK
AND A THERMAL RESISTANCE OF : 8.298808e-003 m2K/W
AT A TEMPERATURE OF : 50.78 C

THE DELTA T THROUGH THE SAMPLE IS : 19.73 C
THE HEATER TEMPERATURE IS : 29.54 C
THE DELTA T ACROSS THE STACK IS : 21.10 C
THE GUARD TEMPERATURE IS : 48.10 C

THE SAMPLE HAS A THERMAL CONDUCTIVITY OF: 3.702624e-001 W/mK = 0.370 W/mK
AND A THERMAL RESISTANCE OF : 8.183858e-003 m2K/W
AT A TEMPERATURE OF : 75.40 C

THE DELTA T THROUGH THE SAMPLE IS : 19.62 C
THE HEATER TEMPERATURE IS : 54.66 C
THE DELTA T ACROSS THE STACK IS : 20.55 C
THE GUARD TEMPERATURE IS : 72.02 C

TEST DESCRIPTION
18-1
Inconel Embed disc

SAMPLE ID : 18-1
SAMPLE THICKNESS: 3.030mm

Average sample temperature = 30 C Controller= 30 C

TU (C)	TG (C)	TL (C)	TH (C)	TU-TL (C)	G	RATIO
50.0	46.2	40.4	30.0	19.64	5A721	0.211266
50.6	46.0	40.8	29.5	19.75	10086.7	0.195657
50.5	46.1	40.9	29.5	19.73	10107.1	0.195156

Average sample temperature = 75 C Controller= 55 C

TU (C)	TG (C)	TL (C)	TH (C)	TU-TL (C)	G	RATIO
76.1	65.9	58.4	49.3	19.74	6854.4	0.233231
65.2	72.0	65.6	54.7	19.63	10161.7	0.198207
65.2	72.0	65.6	54.7	19.62	10167.3	0.198013

USING CALIBRATION FILE: ESL04200.cal USING FIRST ORDER FIT
USING TEST FILE : 18-1.tst

SAMPLE ID : 18-1
SAMPLE THICKNESS : 3.030mm
CTE : 0.000e+000

THE SAMPLE HAS A THERMAL CONDUCTIVITY OF: 2.661347e-001 W/mK = 0.26 W/mK
AND A THERMAL RESISTANCE OF : 8.292808e-003 m2K/W
AT A TEMPERATURE OF : 30.78 C

THE DELTA T THROUGH THE SAMPLE IS : 19.73 C
THE HEATER TEMPERATURE IS : 29.54 C
THE DELTA T ACROSS THE STACK IS : 31.10 C
THE GUARD TEMPERATURE IS : 25.10 C

THE SAMPLE HAS A THERMAL CONDUCTIVITY OF: 3.792624e-001 W/mK = 0.379 W/mK
AND A THERMAL RESISTANCE OF : 8.128285e-003 m2K/W
AT A TEMPERATURE OF : 75.49 C

THE DELTA T THROUGH THE SAMPLE IS : 19.62 C
THE HEATER TEMPERATURE IS : 54.66 C
THE DELTA T ACROSS THE STACK IS : 36.56 C
THE GUARD TEMPERATURE IS : 72.02 C

DATE:

TEST DESCRIPTION
MCD052-13-1
Injection molded disc

SAMPLE ID : 13-1
SAMPLE THICKNESS: 3.030mm

Average sample temperature = 50 C Controller= 50 C

TU (C)	TC (C)	TL (C)	TH (C)	TU-TL (C)	Q	RATIO
60.0	48.2	40.4	30.6	19.64	9472.1	0.221266
60.6	48.0	40.8	29.[illegible]	19.75	10026.7	0.195657
60.6	48.1	40.9	29.[illegible]	19.73	10107.1	0.195156

Average sample temperature = 75 C Controller= 55 C

TU (C)	TC (C)	TL (C)	TH (C)	TU-TL (C)	Q	RATIO
78.1	65.9	58.4	49.5	19.74	8854.4	0.233231
85.2	72.0	65.6	54.7	19.63	10161.7	0.193207
85.2	72.0	65.6	54.7	19.62	10167.3	0.193013

USING CALIBRATION FILE ESL04200.CAL USING FIRST ORDER FIT
USING TEST FILE : 13-1.tst

SAMPLE ID : 13-1
SAMPLE THICKNESS : 3.030mm
CTE : 0.000e+000

THE SAMPLE HAS A THERMAL CONDUCTIVITY OF: 3.651347e-001 W/mK = 0.365 W/mK
AND A THERMAL RESISTANCE OF : 8.298306e-003 m2K/W
AT A TEMPERATURE OF : 50.78 C

THE DELTA T THROUGH THE SAMPLE IS : 19.73 C
THE HEATER TEMPERATURE IS : 29.54 C
THE DELTA T ACROSS THE STACK IS : 31.20 C
THE GUARD TEMPERATURE IS : 48.10 C

THE SAMPLE HAS A THERMAL CONDUCTIVITY OF: 3.702624e-001 W/mK (0.370 W/mK)
AND A THERMAL RESISTANCE OF : 8.183385e-003 m2K/W
AT A TEMPERATURE OF : 75.40 C

THE DELTA T THROUGH THE SAMPLE IS : 19.62 C
THE HEATER TEMPERATURE IS : 54.65 C
THE DELTA T ACROSS THE STACK IS : 30.55 C
THE GUARD TEMPERATURE IS : 72.02 C